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STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER	
FORMAN, BETTY J	
ART UNIT	PAPER NUMBER
1634	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/038,284	EHRICHT ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 25-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 25-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 25 January 2007 in which claims 1, 25, 44 were amended and claims 48-50 were added. All of the amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 25 July 2006 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection, necessitated by the amendments, are discussed.

Claims 1-19, 25-50 are under prosecution.

Claim Objections

2. Claims 17, 28 and 38 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims define the probes as proteins or peptides. However, the polynucleotide probes cannot be further defined as proteins or peptides.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 17, 26, 28, 38, 40, 45-46, 49-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 18, 40 are each indefinite for the recitation "the capillary gap" because the recitation lacks proper antecedent basis in Claim 1. It is suggested the claims be amended to provide proper antecedent basis.

Claims 17 and 38 are indefinite because it defines the nucleic acid probes of Claim 1 as proteins or peptides. Therefore claim 17 cannot further define or limit the probes of Claim 1.

Claim 26 is each indefinite for the recitation "the capillary gap" and "the gas reservoir" because the recitations lack proper antecedent basis in Claim 25. It is suggested the claims be amended to provide proper antecedent basis.

Claim 28 is indefinite because it defines the nucleic acid probes of Claim 27 as proteins or peptides. However, it is unclear how the nucleic acids of Claim 27 can be defined as proteins or peptides.

Claim 45 is indefinite for the recitation "the capillary gap" because the recitation lacks proper antecedent basis in Claim 44. It is suggested the claims be amended to provide proper antecedent basis.

Claim 46 is each indefinite for the recitation "the capillary gap" and "the gas reservoir" because the recitations lack proper antecedent basis in Claim 44. It is suggested the claims be amended to provide proper antecedent basis.

Claims 49 and 50 are each indefinite for the recitation "the solution" because the recitation lacks proper antecedent basis in Claim 1 from which the claims depend. It is suggested the claims be amended to provide proper antecedent basis.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 8-12, 14-15, 18-19, 25-30, 34-35, 39-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Stapleton et al (U.S. Patent No. 5,922,604, issued 13 July 1999).

Regarding Claim 1, Stapleton et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip having a detection area within an optically permeable zone of detection (Column 14, lines 40-57), the detection area including an array of multiple different nucleic acids immobilization (Column 5, lines 40-44), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (Column 5, line 40-Column 6, line 9), an inlet for liquid introduction (Column 6, lines 10-15) whereby a continuous cavity forms a single reaction chamber adapted to amplify and characterize nucleic acids therein (Column 10, line 1-27 and Column 14, lines 40-57).

Regarding Claim 2, Stapleton et al disclose the device further comprising a temperature adjustment means connected to the chamber adapted to permit temperature control (e.g. temperature sensor and valves, Column 13, lines 16-25).

Regarding Claim 8, Stapleton disclose the device wherein the chamber support and body consist of optically permeable material e.g. glass (Column 14, lines 40-57).

Regarding Claim 9, Stapleton disclose the device wherein the chamber support consists of thermally conducting material (Column 13, lines 57-60).

Regarding Claim 10, Stapleton disclose the device wherein the chip consists of optically permeable material e.g. glass (Column 14, lines 40-57).

Regarding Claim 11, Stapleton et al disclose the device further comprising an optically permeable conical recess in the detection area (inverted cone #28, Column 9, lines 50-59).

Regarding Claim 12, Stapleton et al disclose the device further comprising spatially separate inlet (#20) and outlet (#30).

Regarding Claim 14, Stapleton et al disclose the device wherein the chamber is sealingly connected to the support by an adhesive (Column 5, lines 45-54).

Regarding Claim 15, Stapleton et al disclose the device wherein the detection area is configured in spots of immobilized probes i.e. arrayed probes spaced by a few microns (Column 5, lines 40-44).

Regarding Claim 18, Stapleton et al disclose the device configured for optical detection (Column 14, lines 40-45).

Regarding Claim 19, Stapleton et al disclose the device is adapted to allow various forms of detections via optical and non-optical methods (Column 14, lines 40-54). The instantly recited "by a silver precipitation reaction" does not describe or define a structural component of the device. Because the recitation "by a silver precipitation reaction" does not further define the device, Stapleton anticipates the claimed invention.

Regarding Claim 25, Stapleton et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip having a detection area within an optically permeable zone of detection (Column 14, lines 40-57), the detection area including an array of multiple different nucleic acids immobilization (Column 5, lines 40-44), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (Column 5, line 40-Column 6, line 9), an inlet for liquid introduction (Column 6, lines 10-15) whereby a continuous cavity forms a single reaction chamber adapted to amplify and characterize nucleic acids therein (Column 10, line 1-27 and Column 14, lines 40-57).

Regarding Claim 26, Stapleton et al disclose the device wherein a gas reservoir is between the capillary gap and inlet (Column 13, lines 26-32)

Regarding Claim 27, Stapleton et al disclose the device wherein the optically permeable chip includes a detection area having immobilized probes within a gap (chamber) (Column 5, lines 40-64).

Regarding Claim 28, Stapleton et al disclose the device wherein the immobilized probes comprise nucleic acids (Column 5, lines 40-64).

Regarding Claim 29, Stapleton et al disclose the device wherein the detection area is optically permeable (Column 14, lines 40-45).

Regarding Claim 30 Stapleton et al disclose the device wherein the chamber is temperature adjustable and flow controllable (Column 12, line 62-Column 13, line 60 and Column 14, lines 14-23).

Regarding Claim 34, Stapleton et al disclose the device wherein the chamber body includes polycarbonate or polymethylpentene (Column 11, lines 18-20).

Regarding Claim 35, Stapleton et al disclose the device wherein the chamber body includes a sealing surface adapted to releasable connect to the support e.g. adhesive or clamping mechanisms (Column 5, lines 50-54 and Column 12, lines 8-25).

Regarding Claim 39, Stapleton et al disclose the device wherein the optical detection includes fluorescent detection (Column 14, lines 35-57).

Regarding Claims 40-43, Stapleton et al disclose the device wherein the device is suitable for reactions e.g. amplification, thermocycling, antibody binding, expression analysis, enzymatic reactions, etc. (abstract, Column 4, lines 11-37, Column 15, lines 2-20). The instantly claimed "adapted to perform" does not define or describe structural elements of the device. Because Stapleton et al specifically teach the structural elements of Claim 1, because Stapleton et al teach various reactions performed within the device, and because the instant

claims do not define further structural components of the device, Stapleton et al anticipate the device as claimed.

Regarding Claim 44, Stapleton et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip having a detection area within an optically permeable zone of detection (Column 14, lines 40-57), the detection area including an array of multiple different nucleic acids immobilization (Column 5, lines 40-44), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (Column 5, line 40-Column 6, line 9), an inlet for liquid introduction (Column 6, lines 10-15) whereby a continuous cavity forms a single reaction chamber adapted for reacting and characterizing nucleic acids therein (Column 10, line 1-27 and Column 14, lines 40-57) and further a sample inlet (#20) and outlet (#30) are connected to the single chamber (Fig. 1).

Regarding Claim 45, Stapleton et al disclose the device wherein the gap includes means for reacting the sample (Column 14, line 58-Column 15, line 20).

Regarding Claim 46, Stapleton et al disclose the device wherein a gas reservoir is between the capillary gap and inlet (Column 13, lines 26-32).

Regarding Claim 47, Stapleton et al disclose the device wherein the chamber is free of fluid channels to move the nucleic acids to a subsequent chamber (Fig. 1).

Regarding Claim 48, Stapleton et al disclose a device comprising a substrate comprising a detection zone having an array of multiple different polynucleotides immobilized thereon, each in contact with a common solution (Column 5, lines 40-63) and a heating element in thermal connection with the array and solution (Column 13, lines 37-42 and Column 14, lines 14-19).

Regarding Claim 49, Stapleton et al disclose the device further comprising reagents for amplification (Column 1, lines 58-60).

Regarding Claim 50. Stapleton et al disclose the device further comprising a wall disposed opposite the detection zone defining a capillary gap (inverted cone #28, Column 9, lines 50-59).

7. Claims 1-5, 8-10, 12-15, 17-19, 25-30, 34-36, 38-45, 47-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Besemer et al (WO 95/33846, published 14 December 1995).

Regarding Claim 1, Besemer et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip (e.g. glass support, page 6, lines 3-29) having a detection area within an optically permeable zone of detection (e.g. #310, Fig. 3), the detection area including an array of multiple different nucleic acids immobilization (page 7, lines 4-12), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (transparent cover, page 24,lines 19-28), an inlet for liquid introduction (page 6, lines 29-33) whereby a continuous cavity forms a single reaction chamber adapted to amplify and characterize nucleic acids therein (Abstract).

Regarding Claim 2, Besemer et al disclose the device further comprising a temperature adjustment means connected to the chamber adapted to permit temperature control (page 13, lines 10-27).

Regarding Claim 3, Besemer et al disclose the device wherein the temperature adjustment means are on a side of the chamber body e.g. against the middle casing, (page 13, lines 10-27).

Regarding Claim 4, Besemer et al disclose the device wherein the optically permeable zone includes detection spots (i.e. arrayed probes, page 7, lines 4-5) and temperature

adjustment means are on a side of the chamber body e.g. against the middle casing thereby not affecting the transparent, (page 13, lines 10-27).

Regarding Claim 5, Besemer et al disclose the device wherein the temperature adjustment means comprise micro-structure elements e.g. resistive element (page 13, lines 10-27

Regarding Claim 8, Besemer et al disclose the device wherein the chamber support and body consist of optically permeable material e.g. glass (page 6, lines 3-29 and page 24, lines 19-24).

Regarding Claim 9, Besemer et al disclose the device wherein the chamber support consists of thermally conducting material (page 13, lines 10-27).

Regarding Claim 10, Besemer et al disclose the device wherein the chip consists of optically permeable material e.g. glass (page 6, lines 3-29 and page 24, lines 19-24).

Regarding Claim 12, Besemer et al disclose the device further comprising spatially separate inlet and outlet (e.g. Fig. 3, #350/#360).

Regarding Claim 13, Besemer et al disclose the device wherein the inlet and outlet are separated at the valve assembly (#2828) by a gas reservoir (#2802).

Regarding Claim 14, Besemer et al disclose the device wherein the chamber is sealingly connected to the support by an adhesive (page 2, lines 15-17/ page 24, lines 5-13).

Regarding Claim 15, Besemer et al disclose the device wherein the detection area is configured in spots of immobilized probes i.e. arrayed probes (page 7, lines 4-12).

Regarding Claim 17, Besemer et al disclose the device wherein the probes are peptides or proteins (page 5, lines 1-15).

Regarding Claim 18, Besemer et al disclose the device configured for optical detection (page 21, lines 6-15/ page 24, lines 19-22).

Regarding Claim 19, Besemer et al disclose the device is adapted to allow various forms of detections via optical and non-optical methods (page 21, lines 6-15). The instantly recited

"by a silver precipitation reaction" does not describe or define a structural component of the device. Because the recitation "by a silver precipitation reaction" does not further define the device, Besemer anticipates the claimed invention.

Regarding Claim 25, Besemer et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip (e.g. glass support, page 6, lines 3-29) having a detection area within an optically permeable zone of detection (e.g. #310, Fig. 3), the detection area including an array of multiple different nucleic acids immobilization (page 7, lines 4-12), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (transparent cover, page 24,lines 19-28), an inlet for liquid introduction (page 6, lines 29-33) whereby a continuous cavity forms a single reaction chamber adapted to amplify and characterize nucleic acids therein (Abstract).

Regarding Claim 26, Besemer et al disclose the device wherein the inlet and outlet are separated at the valve assembly (#2828) by a gas reservoir (#2802).

Regarding Claim 27, Besemer et al disclose the device wherein the optically permeable chip includes a detection area having immobilized probes within a gap (page 24, lines 19-28).

Regarding Claim 28, Besemer et al disclose the device wherein the immobilized probes comprise nucleic acids (page 7, lines 4-5).

Regarding Claim 29, Besemer et al disclose the device wherein the detection area is optically permeable (page 24, lines 19-28).

Regarding Claim 30 Besemer et al disclose the device wherein the chamber is temperature adjustable and flow controllable (page 13, lines 10-45).

Regarding Claim 34, Besemer et al disclose the device wherein the chamber body and/or support includes polycarbonate or polysyrene (page 6, lines 15-20).

Regarding Claim 35, Besemer et al disclose the device wherein the chamber body includes a sealing surface adapted to releasable connect to the support e.g. depression for adhesive and/or septum (page 8, lines 25-37 /page 9, lines 36-42).

Regarding Claim 36, Besemer et al disclose the device wherein the probes are DNA or RNA (page 7, lines 4-5).

Regarding Claim 38, Besemer et al disclose the device wherein the peptides or proteins are e.g. antibodies (page 5, lines 1-15).

Regarding Claim 39, Besemer et al disclose the device wherein the optical detection includes light transmission (page 24, lines 19-28).

Regarding Claims 40-43, Besemer et al disclose the device wherein the device is suitable for a variety of reactions e.g. sequencing, etc. (abstract, page 20, lines 23-32). The instantly claimed "adapted to perform" does not define or describe structural elements of the device. Because Besemer et al specifically teach the structural elements of Claim 1, because Besemer et al teach various reactions performed within the device, and because the instant claims do not define further structural components of the device, Besemer et al anticipate the device as claimed.

Regarding Claim 44, Besemer et al disclose a device for duplication and characterizing nucleic acids comprising a chamber body containing an optically permeable chip (e.g. glass support, page 6, lines 3-29) having a detection area within an optically permeable zone of detection (e.g. #310, Fig. 3), the detection area including an array of multiple different nucleic acids immobilization (page 7, lines 4-12), an optically permeable support on which the chamber body is sealingly place to form a continuous cavity enclosing the array (transparent cover, page 24,lines 19-28), an inlet for liquid introduction (page 6, lines 29-33) whereby a continuous cavity forms a single reaction chamber adapted to amplify and characterize nucleic acids therein (Abstract) and further a sample inlet and outlet are connected to the single chamber (e.g. Fig. 3, #350/#360).

Regarding Claim 45, Besemer et al disclose the device wherein the gap includes means for reacting the sample (page 20, line 43-page 21, line 4).

Regarding Claim 47, Besemer et al disclose the device wherein the chamber is free of fluid channels to move the nucleic acids to a subsequent chamber (e.g. Fig. 3).

Regarding Claim 48, Besemer et al disclose a device comprising a substrate comprising a detection zone having an array of multiple different polynucleotides immobilized thereon, each in contact with a common solution (page 8-9 and Fig. 3) and a heating element in thermal connection with the array and solution (page 13, lines 10-27).

Regarding Claim 49, Besemer et al disclose the device further comprising reagents for amplification (e.g. buffer and targets, page 20, line 43-page 21, line 4).

Regarding Claim 50. Besemer et al disclose the device further comprising a wall disposed opposite the detection zone defining a capillary gap (i.e. cover #2770, page 24, lines 19-22).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (WO 95/33846, published 14 December 1995) or Stapleton et al (U.S. Patent No. 5,922,604, issued 13 July 1999) in view of McBride et al (U.S. Patent No. (6,296,752, filed 4 June 1999) as defined by Academic Press Dictionary of Science and Technology (Academic Press, San Diego, 1992, page 1768)

Regarding Claims 6 and 7, Stapleton et al teach the device comprising automated fluidic movement (Column 9, lines 9-36 and Column 14, lines 25-35) and Besemer et al teach the device comprising fluidic movement (page 13, lines 38-45). However, Stapleton and Besemer are silent regarding a quadrupole system comprising electrodes of gold-titanium.

However, electro-osmotic flow provided by gold-titanium electrodes was well known in the art at the time the claimed invention was made as taught by McBride et al who teach that improved electrodes for providing electro-osmotic flow comprise gold and titanium (Column 4, lines 1-16) wherein their electrode device comprises multiple electrodes providing a distribution of magnetic poles (Column 3, lines 34-55). Furthermore, Academic Press Dictionary of Science and Technology defines a distribution of magnetic poles as a quadrupole. Therefore, the multiple electrode device of McBride et al is a quadrupole system as defined by the Academic Press Dictionary.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the multiple gold-titanium electrodes of McBride et al to the electrodes of Besemer et al or Stapleton et al based on the improved teaching of McBride et al (Column 4, lines 1-16).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (WO 95/33846, published 14 December 1995) in view of Atwood et al (U.S. Patent No. 5,475,610, filed 20 April 1992).

Regarding Claim 11, Besemer et al teach the device as discussed above wherein the substrate has recesses (page 6, lines 11-12), but they do not teach the reaction chamber comprises a conical recess. However, it was well known in the art at the time the claimed invention was made that the preferred surface for heated reactions (e.g. PCR) comprise conical

recesses as taught by Atwood et al (Column 12, lines 28-47). Atwood et al further teach that conical recesses provide very tight temperature control for all samples and within each sample throughout the PCR cycles (Column 12, lines 40-47). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the conical recess of Atwood et al to the heated reaction chamber of Besemer et al thereby providing means for very tight temperature control for the expected benefit of controlling temperature of each sample throughout the PCR cycles as taught by Atwood et al (Column 12, lines 40-47).

11. Claims 16 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (WO 95/33846, published 14 December 1995) or Stapleton et al (U.S. Patent No. 5,922,604, issued 13 July 1999) in view of Fodor et al (U.S. Patent No. 5,744,101, issued 28 April 1998).

Regarding Claims 16 and 37, Stapleton et al teach the device wherein the preferred probe arrays are made using the method of Affymetrix (Column 14, lines 46-49) and Besemer teach the devices wherein the probe arrays are made using VLSIPS (page 7, lines 1-2). They do not specifically teach the probes are immobilized through spacers. However, Fodor et al (i.e. Affymetrix and VLSIPS technology) teach their probes are immobilized through spacers (i.e. linkers) and they teach a motivation to immobilize through spacers i.e. degree of probe-target binding is dependent on the presence of spacers (Column 18, lines 42-67). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the spacers of Fodor et al to the immobilized probes of Besemer et al or Stapleton et al to thereby maximize probe-target binding as taught by Fodor et al (Column 18, lines 39-41).

12. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (WO 95/33846, published 14 December 1995) or Stapleton et al (U.S. Patent No. 5,922,604, issued 13 July 1999) in view of Lipshutz et al (U.S. Patent No. 5,856,174, issued 5 January 1999).

Regarding Claims 31-33, Stapleton et al teach the device comprising resistive heaters/sensor (Column 14, lines 14-17) and Besemer et al teach the device comprising resistive heaters/sensors (page 13, lines 10-17). Stapleton and Besemer are silent regarding the composition of the resistive heaters. However, nickel-chromium thick film resistive heaters and sensors were well known and routinely practiced in the art at the time the claimed invention was made as taught by Lipshutz et al (Column 24, line 53-Column 25, line 6). Lipshultz et al further teach their resistive heater composition is capable of producing temperatures in excess of 100 degrees without adverse affects. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the resistive heater composition of Lipshultz et al to the resistive heaters of Stapleton and/or Besemer. One of ordinary skill in the art would have been motivated to do so based on the preferred use and benefits taught by Lipshutz et al (Column 24, line 53-Column 25, line 6).

13. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (WO 95/33846, published 14 December 1995) in view of Stapleton et al (U.S. Patent No. 5,922,604, issued 13 July 1999).

Regarding Claim 46, Besemer et al disclose the device comprising a gas reservoir, but do not teach the reservoir is positioned between the capillary gap and inlet. However, Stapleton et al teach the similar device wherein the gas reservoir is positioned in a valve to allow expansion within the capillary gap during heating (Column 13, lines 26-40). It would

have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the gas reservoir positioned as per Stapleton to the device of Besemer. One of ordinary skill in the art would have been motivated to do so for the expected benefit of compensation expansion within the gap as taught by Stapleton (Column 13, lines 26-40).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

15. No claim is allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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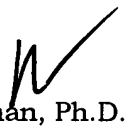

BJ Forman, Ph.D.
Primary Examiner
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